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## PATENT ABSTRACTS OF JAPAN

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**ENG CO LTD**(72) Inventor: **YATOMI TAKASHI**(54) **MODULATION CIRCUIT**

## (57) Abstract:

**PURPOSE:** To make the modulation constant in an equivalent way by varying a level of a signal to be modulated even if the modulation sensitivity differs in each oscillated frequency from a voltage controlled oscillator.

**CONSTITUTION:** A signal to be modulated  $f_s$  and a reference signal  $f_p$  from a reference signal generator 1 are given to a modulation terminal of the voltage controlled oscillator VCO while being superimposed each other through a gain adjustment device 2, whose gain is varied with an external signal. As a result, a carrier outputted from the VCO is subject to frequency modulation by the signals  $f_s$  and  $f_p$ . Then a signal  $f_c$  is given to a demodulator 3, the signals  $f_s$  and  $f_p$  are extracted, then the signal  $f_p$  is extracted via a filter 4, is converted into a DC voltage by a DC voltage converter 5. Then demodulated signals  $V_{p1}$ ,  $V_{p2}$ ,  $V_{p3}$  are compared with a reference voltage  $V_r$  at a voltage comparator 6 and the gain of a gain adjusting device 2 is varied by a difference voltage and  $V_1$ ,  $V_2$ ,  $V_3$  are control voltages. Even if the modulation sensitivity differs in each oscillated frequency, the level of the signal to be

modulated is varied to make the modulation equivalently constant.

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